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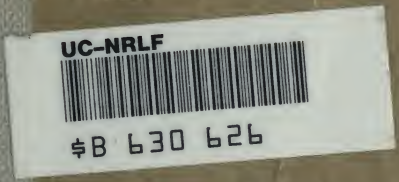

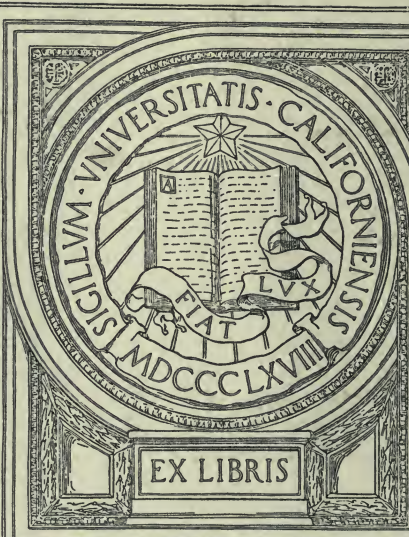
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THE TORNADO OF 1851

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THE TORNADO

OF

1851,

IN

MEDFORD, WEST CAMBRIDGE AND WALTHAM,

MIDDLESEX COUNTY, MASS.

BEING A

REPORT BY REV. CHARLES BROOKS,

AND

REPORTS BY OTHER COMMITTEES.

BOSTON:
J. M. USHER, 37 CORNHILL.
1852.

F72
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Entered according to act of Congress, in the year 1852,
By JAMES M. USHER,
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PREFACE.

The author of the following report is anxious to state, that he does not present it as embracing every fact, but, as a record of those facts which seemed to him most important. He has carefully refrained from meddling with any theory, *as such*, but has stated facts as he found them immediately after the event. With regard to the position in which trees were found lying, he carefully recorded those which seemed to be exceptions to the general appearances.

C. B.

M105275

West Medford, August 28th, 1851.

At a meeting of the citizens of West Medford, called for the purpose of considering the propriety of ascertaining the extent of the damage by the Tornado on Friday last, Rev. Charles Brooks called the meeting to order, and Hon. Edward Brooks was chosen Chairman, and James M. Usher, Secretary.

After remarks by Gorham Brooks, Esq., Rev. Chas. Brooks, J. M. Usher and others, it was

Voted, That a Committee of five be appointed to appraise damages.

Voted, Gorham Brooks, Chas. Caldwell, Franklin Patch, Albert Smith, and Jeremiah Gilson, constitute the Committee.

Voted, That the Committee on appraisal be instructed to consider the circumstances of the sufferers, and report cases, (if any,) where charity is deemed necessary.

Voted, That the Committee be authorized to communicate with similar Committees from other towns in relation to the publication of the result of their investigations.

Voted, That Rev. Chas. Brooks be appointed a Committee to collect and arrange the facts in reference to science.

Voted, To adjourn.

J. M. USHER, *Secretary.*

October 30th. A meeting was called to hear Reports from the Committees. Rev. Chas. Brooks submitted his Report, and it was accepted. The Committee on appraisal made their Report, which was accepted, and the Committee was instructed to ask liberty of the town to have it spread upon the records.

Adjourned. J. M. USHER, *Sec.*

THE TORNADO.

Requested by citizens of West Medford to collect the facts relating to the Tornado of August 22d, 1851; the following statements are respectfully submitted as a brief

REPORT.

The state of the atmosphere from sunrise to the time of the tornado, on August 22d, was peculiar. Many spoke of a dead closeness, a remarkable want of elasticity in the air. Many complained of lassitude from this cause. Clouds gathered; and there were appearances of wind approaching; but it did not come. For an hour before the tornado, there was here almost a perfect calm; yet it was a calm prophetic

of, we knew not what. An old sea-captain told his wife, at 4 o'clock, P. M., that "if he was at sea he should expect a water-spout."

Direction. Coming from Waltham, the central line of march seemed to be from W. S. W. to E. N. E., till it reached the western edge of Medford at the Mystic river, near the "Wear bridge." Here it changed its direction slightly, and moved from W. by S. to E. by N., keeping this line to the edge of Malden, beyond which I have not traced it. From a hill forty or fifty feet high, near Fulton street, I could take its centre on the hills of West Cambridge, and found it S. 60° W., or nearly W. S. W., while its centre from Fulton street to the hill in West Medford was W. by S. exactly; thus showing that it curved slightly towards the east at its passing of Mystic river. After taking the direction at Mystic river, Lowell R. R. depot, Miss Brooks' hill, Mr. Hall's hill, and at Fulton Street, the result seems to be, that its march was upon a straight line.

CENTRE. I use the word *centre* to designate that *line of march* towards which objects, on both sides, were thrown. Suppose the tornado had been in the shape of an inverted cone, revolving round a perpendicular axis, and its sharp end had ploughed a furrow in the earth through its whole course, I should call this furrow *the central line of its march*, or its *centre*. I use the word *centre* in this sense. To discover where the centre was at every place is difficult; because the circumstances in certain places do not allow the fixing of any particular line. At such places I noted a line which ranged W. by S. and E. by N., as these points were clearly determined on both sides of the doubtful spot. Thus taking two determinate centres, half a mile apart, I considered the central line of motion the straight line between these two ascertained centres. There is an impropriety in speaking of a central line as wider or narrower at different places; though the position in which objects were left by the wind, would indicate that the area of action on the centre was not uniformly of the same width. Whether

the forces were equal at the same elevations I cannot say, but presume them to have been so.

Form. All who saw the tornado speak of its "form." Whether the dust, water and other materials which it gathered into its bosom, in the air, gave it such visible shape, it is not important to inquire. To some, who watched it closely, its form resembled a tall, wide-spreading elm tree. To others it appeared like an inverted cone. Several represent it as a dense upright column; and a few as having some resemblance to an hour-glass. It might have had these forms at different places in its route, or it might have appeared differently at the same moment, to persons looking at it from different angles. Some who watched it at right angles to its line of march, and some who saw it from elevated points, through four or five miles of its course, concur in saying that the conical point let down from the cloud moved about at short distances, now pushing down to the earth and now rising from it. Its side motions were compared to

those of an elephant's trunk. This action was like the descending tube in a nearly completed water-spout at sea.

Width. Measuring on the line S. by E. and N. by W., which is at right angles to the central line of motion, I took the outer southern and northern edges, where marks of violence were unequivocally left; such marks as the breaking of limbs of trees, bending of fences, prostrating of corn or unhinging of a window-blind. At Mystic river its width was seventy-one rods; at the Lowell R. R. depot, sixty rods. Between these places it moved over an almost perfect level. At Miss Brooks' it was fifty-four rods wide; and here it crossed the hill on which her house stands, which is perhaps fifty feet above the level of the river at low tide. At Messrs. Swan's and Hall's land, at the "meeting-house brook," it was seventy-six rods. Here it moved over a small valley. In Mrs. Porter's wood-lot it was fifty-six rods. At Dr. Kidder's on Andover turnpike it was fifty-four rods. At Fulton street I could not ascer-

tain its width with perfect accuracy, but think it was not much over forty rods.

Connected with the subject of width is this fact;—that, in several places the distance from the centre to the outer *southern* edge is from eighteen to twenty-five rods further than from the centre to the *northern* edge. At one place the ravages on each side were nearly equidistant from the centre; but in all the other cases of measurement, the statement above was verified.

Another fact connected with the subject of width is this,—that it seemed to dart off on each side, at unusual distances, and do violence in a narrow-pathed excursion;—or, rather (to speak more intelligibly) there seemed to be some strata of air, on its outer borders, more ready to rush in toward the central line of march than contiguous strata. This is shown many times in orchards, where rows of trees stood at right angles, or nearly so, to the central line; some entire rows were prostrated, while their nearest neighbors on each side remained unmoved. The violence, in these narrow pencils of

wind, seems to have been as great twenty rods from the centre as it was within two or three rods. This rush of wind in veins, from the outer edges to the centre, is marked over the whole route. It reminds one of flashing pencils of electricity.

Speed. The agitation of mind in those persons, who were within reach of the tornado and felt its power, was too great and lasting to enable them to measure its velocity with reliable precision. If an individual on "Prospect Hill" had seen it through five or ten miles of its march, such an individual might guess at the speed with the best chance of accuracy; but, after all, it could be only a guess. A few facts may help us in guessing. Mr. West, who was building a house for Mr. Haskins, saw it coming from West Cambridge, and watched it with anxiety. As soon as he saw it destroy the new house west of the Lowell R. R. depot, he sprang out of the house where he was, and ran, as he says, "for his life," to shelter himself behind a wall only five rods distant from the place where he started. He

had scarcely got to his shelter when the house he had left was entirely destroyed. He thinks there could not have been over five or six seconds between the falling of the two buildings. I was in my sister's house at the time; saw it but an instant before it struck the house. I rushed to lock the front door, and at the moment we felt the first shock, I cried out violently to the family, that "all was over." I opened the door and sprang upon the bank over which its centre had just passed and looked for it. It had gone at least a mile before I could reach the place, though the distance from the house was not three rods. It seemed to me but a breath of time; and now, after reviewing the facts, I cannot persuade myself that its speed at that place was less than fifty miles per hour.

Power. They, who, like us, were in it, and have seen its terrible ravages, need not be told that it exhibited a power in the elements never witnessed by the oldest inhabitant of this region. Houses strongly built were demolished, as if they had been

made of paper. Oak and walnut and cedar trees, of the largest growth, were entirely uprooted, some of them snatched out of the ground and carried through long distances; roofs of buildings taken up, as by sudden suction, and carried into the embrace of the cloud, and transported for miles. The roof of Miss Brooks' house was seen to go thus; and although every beam and rafter went with it, we have not yet been able to find even a shingle of it, though we have searched through three miles. Its action upon the grass and corn was remarkable. It not only prostrated them, but partly buried them in the earth. The fields in this respect looked as if a heavy roller had passed over them.

Its action upwards was yet more remarkable. No one saw any object driven *downward* by it; but all testify to its taking things *up*. To name a few instances. Shingles and boards and rafters and slates, which are known to have belonged to certain houses, were found two or three miles from the places. A tree of very large size in Miss Brooks' orchard, was decapitated;

the trunk now stands erect, but the top was taken up and carried off and never has been found. So there are instances, in every locality, of objects taken up and transported through great distances. One witness says she saw the large barn, owned by Miss Brooks, rise in the air and then fall in ruins. There is evidence yet remaining that this large barn, built of heavy timber and plank, was taken up and then carried fifteen feet before it was torn to pieces. Many buildings were moved in a similar manner. A freight car, which was standing upon the side track of the Lowell R. R. near the depot, was driven upon that track one hundred and sixty-five feet, and then taken up and carried sixty feet E. nearly at right angles to the track. At Doct. Kidder's a thick, strong brick wall was thrown down ten feet from its foundation; some of the bricks carried to a great distance. A pine tree ten inches in diameter, was broken off, then carried some hundred feet into the air, and then thrown through the roof and window of Doct. K.'s house. His lightning rods were much bent.

Another trace of power, left behind by the tornado, is seen in the small fragments into which it shattered every fragile thing. It seemed to act upon a building as a mill grinds whatever is put into it. If every square foot of atmosphere in the column had been armed with a steel tooth, and the buildings and trees, which went into it, could have passed through it, it could not have shivered them to smaller pieces. I leave to poets to describe the powers and terrors of this phenomenon, while to me it seems like a large storm intensified. The winds which, if spread over two hundred miles, would have made a severe storm throughout that extent, seemed concentrated within as many yards.

DIRECTION IN WHICH TREES AND VEGETABLES WERE THROWN. With regard to this part of the subject, I would state, *as the general fact*, that there was uniformity in the directions in which objects were thrown. Under similar circumstances similar appearances exhibit themselves. For example—with respect to trees; they which were standing

in the centre of the line of march, supposing that centre to be a line running W. by S. and E. by N., lie coincident with that line. They, which were nearest to this line on each side of it lie nearly parellel with it, but not exactly. They on the north side of the centre point to spaces between E. by N. and E., while they on the south side point to spaces between E. by N. and E. N. E. They on the north side, which are further yet from the centre, and next to those last mentioned, point to spaces between E. and E. S. E., while the corresponding ones, on the south side, point to spaces between E. N. E. and N. E. They which are further still from the centre, on the north side, lie pointing to spaces between E. S. E. and S. E. by S., while they in corresponding distances, on the south side, lie pointing to spaces between N. E. and N. by E. They, on the north side, which are furthest from the centre, lie pointing to spaces between S. E. by S. and S. by E., while they at similar distances from the centre, on the south side, lie pointing to

spaces between N. by E. and N. by W. Those trees which lie pointing S. by E. and N. by W. lie at right angles to the central line of march, and of course lie pointing in exactly opposite directions. Nine-tenths of the trees prostrated by the tornado, lie in the positions above designated. They, which are not directly upon the central line, lie pointing to that line. This is true of the trees and shrubs and corn and grass up to 90° distant from the point E. by N., on each side; and there, at 90° from that point, they stop; all being included within E. by N. and S. by E. on one side, and within E. by N., and N. by W. on the other!

The above statements record the *general* facts respecting the directions in which trees and other vegetables were thrown by the tornado. It seems as if a vacuum had travelled, (if we can say so,) fifteen or twenty miles from W. by S. to E. by N., and the wind had rushed in with violence, not only behind it, but on each side towards

its central line of motion, prostrating the trees in the manner above stated.

Of the remaining one-tenth part of the trees and objects, thrown about by the tornado, a very different statement must be made. The following facts carefully verified, as the others were, by personal examination, seem to contradict them all. Those trees and objects are selected, which most clearly show the course of the wind at the places signalized; and which seemed most important for illustrating all the phenomena. The direction in which trees lie are not given in degrees, presuming that the minute divisions, named in the compass, would express the facts with sufficient accuracy.

Beginning at Mystic river, near the "Wear bridge," we find many trees prostrate. On the bank of the river lie four large apple trees pointing thus: 1st, Three rods north of the central line of march, points E. by N. 2d., Three and a half rods south of centre, points E. N. E. 3d, Eight and a half rods south of centre, N. E. 4th, Fifteen and a half rods south of centre, N. E. by E.

Another apple tree, eighteen rods south of the centre and not far from the river, and being the outside tree in that latitude, lies pointing E. N. E. In the same orchard a large apple tree, at the centre, (if I fixed that point rightly,) lies pointing N. E. by E. One and a half rod N. E. by E. from this, lies another large apple tree N. E. by E. One rod exactly N. of this last, lies an apple tree broken at the ground and not rooted up, pointing exactly E., its head *under* the head of its neighbor! A large walnut tree about twenty-five rods north of centre, points S. S. E.; while a double apple tree, eleven and a half rods south of it, points due S. In the same orchard an apple tree, twenty-four rods south of centre, points N. E. by E. Another large apple tree, eight rods south of centre, points N. E., while another apple tree, near by and at the centre, points N. E. by E.; and a cherry tree, sixteen rods S. of centre, points S. E. by E. In this locality there are instances of trees lying N. E. by N. and E. N. E., though not more than one or two rods apart; trees moreover of nearly the same size. In this district, also, through

a field of seventy-five acres, stand apple trees unmoved and uninjured, while all their nearest neighbors lie prostrate and broken. In this same level field is a high wooden bridge crossing the Middlesex canal, and exposed apparently to the full sweep of the gust, which was not moved or injured. More wonderful yet; at the side of this bridge is a small wooden bath-house, so light that three men might carry it away, and so frail that one might think that a Chinese fan applied with energy might blow it over, this building stands untouched, though nearer the centre than is the bridge.

Near the Lowell R. R. depot the tornado seemed to narrow its action and increase its violence. A tree there, two and a half rods from centre, points E. S. E., while in the same range another tree, of same size, and five and a quarter rods from centre, points S. E. by S., which is almost at a right angle to the centre.

In Miss Brooks' garden the trees, to the number of fifty or more, lie according to the *general statement* made at first, with one or two exceptions. A locust tree, nine and a

quarter rods from centre, points N. W., while a cherry tree that lies *upon* it, points S. S. E. One rod south of centre, a cherry tree points N. E. by E. Twenty-eight rods north of centre stands the trunk of the large apple tree, before noticed, whose top went up leaving few marks of violence in the part which remains.

In Mr. Alfred Brooks' garden, three or four rods north of the centre, within a circle whose diameter is thirty-five feet, lie six trees thus,—three point E. N. E.; one E.; one S. E. by S.; and one, which is fifteen feet N. of the others, S. by W.

In Mr. Swan's field, near "meeting-house brook," four elm trees stood in a row upon a line running nearly E. and W. The most western tree was the smallest, and they increased in size as they stood nearer to the E. The last one was three feet in diameter, three feet from the ground; and it contains, I should judge, eight cords of wood. It was further from the W. than any of its neighbors by twenty feet, and yet it fell before any of them, and it fell in a direction very different from any of them. These elms were

not far from the centre, yet the eastern one and the largest fell pointing N. by W., while the next one west of it, which was eighteen inches in diameter and twenty feet distant, fell pointing E. N. E. Its body lies *upon* the roots of the great elm. Another, twenty feet W. of the last, points E., and lies over the lowest part of the trunk of the great elm. The last and smallest fell pointing E. Here we see four large elms, which stood in a row running E. and W. all prostrated; the one farthest from the place whence the tornado came falls towards the N., while the other three lie upon it and fell towards the E. The elm next to the large one fell before its western neighbor, and the most western fell last. Two and a quarter rods S. E. by S. from the great elm, an apple tree points N. E. Thus within a circle, whose diameter is less than four rods, we find five trees, thus placed by the wind. These trees were in a gentle valley and no high lands near.

In Mr. P. C. Hall's orchard, which is in the same valley and not more than twenty rods distant from the great elm, there was

great diversity in the position of the trees. A large apple tree, fifteen rods N. of centre, points S. S. W. Several trees in a row N. of centre lie pointing S. E. by S. Some of these are within one rod of centre, while others distant from them not more than a a rod W. or E., lie pointing E. by S. Five and six rods S. S. E. from the last mentioned, and three rods S. of centre, lies an apple tree N. N. E. A large apple tree, three and a half S. of centre, lies N. by E.; while another apple tree, only two and a half rods S. W. by S. from it, lies S. S. W., which direction is nearly the reverse of the last mentioned. Ten and a half rods N. E. from the last named apple tree lies another S. S. E. Five and three quarter rods E. from this last lies an apple tree N. W. Five and a half rods E. N. E. from this lies an apple tree, S. E. by S., which is almost directly opposite the last mentioned. Seven and a half rods south of this lie four large trees about E. N. E. All these trees with their remarkable differences of position, lie within an acre of land.

In the wood lot of Mrs. Porter, which

may be half a mile or less from Mr. Hall's orchard, we find a willow tree four feet in diameter, the largest in diameter of all the trees prostrated by the tornado, pointing N. by E., while another willow of equal size, only four rods west of it, stands unmoved and almost unbroken. Both these trees are nearly upon the central line of march, and both in a small valley equally exposed. Three and a half rods N. E. from the standing willow lies a large cedar pointing W. by N.

Following the track of the wind, we find in the eastern part of Mrs. Porter's lot, several trees lying in very varying positions. Ten rods north of centre lies a large cedar pointing W. Covering the roots of this lie two cedars pointing S. E. by S. Near this group lie nine cedars all in much of the like diversity. In the same neighborhood, at or near the centre, within a circle whose diameter is four rods, lie large cedars, as follows :—No 1, apparently at the centre, lies N. W. exactly. At its base lie three smaller cedars E. by S., which is almost in an opposite direction. The trunks of these trees

were not more than four feet apart, when standing. A low wall separated the three smaller trees from the larger. Here we see four trees standing together; one is thrown nearly W., and the others thrown nearly E. They were not far from the same height.—No. 2. Three rods N. N. W.; from the last mentioned group lies a large cedar E. S. E.—No. 3. Another cedar whose trunk, when standing was only six feet from No. 2, lies E. N. E.—No. 4. One and three quarter rod N. of No. 3, lies a large cedar S. W. almost the opposite of No. 3.—No. 5. Two and three quarter rods N. E. of No. 3, lies a large cedar pointing W. exactly.

In Mr. Dudley Hall's wood lot most of the trees lie pointing to the central line of march, according to the *general* statement. They lie at angles more or less acute, according to their nearness to that centre. At this place lies a large cedar, five and three quarter rods S. from centre, which is twisted just half round. The twist is from the S. towards the E. and from the E. towards the N. just half a revolution. It fell upon a high and heavy wall, which was leaning

against its trunk. It points N. N. E. A tall buttonwood tree, one and a quarter rod E. from the twisted cedar, lies E. Near by lies a very large cedar pointing N. E. by E.; it fell across a wall, and its trunk is split lengthwise, for several feet, into twenty or thirty layers; but it is not twisted in the least. In this lot stands the oldest and largest oak tree in Medford. It had little or no head to lose, or the tornado would have decapitated it. Though standing on a hill and near the centre it remains unmoved. Just beyond it easterly is a steep descent into a small valley, twenty feet deep perhaps. This valley was filled with oaks, walnuts, cedars, &c. Most of them were uprooted; while smaller trees, which stood more exposed upon the hill, escaped unhurt. Some of these trees lie in remarkable positions. A large cedar, not far from centre, lies N. by W. Six feet N. by W. from the last mentioned, lies another large cedar E. N. E. Three feet N. by W. from this last, lies another large cedar exactly E.

After this havoc in the valley, the tornado passed over fifty or sixty rods of deep

woods, prostrating only here and there a tall tree, and apparently not moving the many standing by their sides.

At Doct. Kidder's the trees lie mostly according to the *general statement.* In Mr. Page's grounds next to Andover turnpike, an immense elm tree, not far from the centre, lies N. E. by N. A cherry tree, near the road and about at the centre, lies E. by S., while two and three quarter rods E. S. E. from said cherry tree, lies an apple tree, N. exactly.

Following the track E. by N., from this place the usual appearances exhibit themselves. Here and there it seemed to dip down and do its work of ruin, and then rise and go over acres doing little or no injury.

At the point where it crossed Fulton street, its width seemed less than at any previous place, and its violence less diffusive. Striking the steep hill, at the E. of the road, it selected some large cedars, and a very large walnut tree and prostrated them entirely. At this place I found some exceptions to the truth of the *general state-*

ment. Among these exceptions to the general position of the prostrate trees, there are some remarkable instances. But there is a cedar upon the hill, which lies E. by N., and being at the centre, lies according to the general statement; while another cedar, one and a quarter rods N. of this, lies W. N. W. Two and a quarter rods N. of this last, lies a cedar only 5° S. of W. Two rods S. of the cedar, first named upon the hill, lies a large oak N. E. by N.

In the forest, eighty rods E. from Fulton street, it prostrated six or eight very large trees, of oak and locust, and they all lie on the N. of the centre, pointing nearly N. N. W. Near them, in a S. S. W. direction, lies a large tree pointing N. E. by E. Here in a dense forest, only a few trees were prostrated, while hundreds immediately beside them remain untouched. It selected some of the loftiest oaks, only breaking off the tops of some, though generally uprooting them entirely.

The track of the tornado from Miss Brooks' to Fulton street, was over an uneven, but not hilly surface. None of the

elevations are more than twenty-five or thirty feet. Part of the territory was open and cleared land and part was well wooded.

DIRECTION IN WHICH BUILDINGS WERE THROWN. The directions in which buildings were thrown were according to the *general statement*, before made, if we confine that statement to large masses. With regard to small objects the remark does not hold good.

In the tossing about of roofs and the sides of buildings, in the air, it is to be considered that the wind must act upon them somewhat differently from what it does upon a tree. Roofs, boards, shingles, slates, &c., present wide and compact surfaces ; and if their parts hold together, they might be driven by a controlling force on one side, which would shoot them in very different directions, and sometimes force them far from the line which a small and round body would be compelled to take. The direction in which trees and chimneys lie, at any place, would more accurately indicate the *exact* course of the wind at that place, than the direction in which roofs or slates

could. A tree, which is thrown down and yet held by its roots, will indicate the exact direction in which the prostrating power acted; as the position of a ship at anchor in tide waters will indicate the exact course of the current. The zig-zag pitchings of a flat, extended surface, in a high wind, may be seen in a boy's kite, when, high in air, it happens to lose its tail. By its descent, after such a loss, who could tell exactly which way the wind blew?

The roof of Mr. Sanford's shed, at the Lowell R. R. depot, though a few feet north of the centre, was thrown twenty-five or thirty feet N. E., and rested at the foot of a tree which pointed E. by S. The roof of Mr. Pierpont's house, though six rods N. of the centre, was carried towards the centre with such violence as to shoot it beyond that centre nearly five rods, and it rested at the foot of a prostrate tree, which pointed E. N. E. The slates from this roof were separated from it probably while at its greatest elevation, and at that moment, being near the centre, they were broken and carried as destructive missiles in every di-

rection. I found some of them a mile distant from their starting point. Beams and rafters of large size were carried in the air to great distances; and whenever any such object acquired a momentum sufficient to force it out from the bosom of the tornado, it fell with exceeding violence, penetrating buildings and breaking off large trees. The direction in which such beams were thrown to the earth would indicate the direction of the wind at the place where they descended, but might not show its direction at the place where they were first taken up.

Miscellaneous Items. There were many who thought that the apples lying upon the ground at the time, were baked on their south side by the heat in the wind. That most apples, so situated among us, were found so baked is true; but whether the sun had not previously done this, according to his usual action in a mid-summer drought, is what we leave others to decide. No one who was in the wind felt any baking heat during its passage. If there had been heat, sufficient to bake apples to the extent as-

serted, that heat must have scorched the leaves and grass, and would probably have set fire to hay or shavings.

Whirl. I find but one tree twisted by the wind, and that is a large cedar, five and three quarter rods south of centre, and it lies pointing N. N. E. It was south of a large wall, in contact with which it stood and across which it fell. It is twisted just half a revolution. Whether the falling of trees next it, or trees thrown out of the tornado, or any such cause, could have given it the whirling motion, it is impossible to say. No evidence of any such forcible action upon it is discoverable. It was a tall tree, but not so tall as the buttonwoods, three or four rods east of it, which stood equally exposed. Throughout the track in Medford I find no evidence of a rotary motion in the force which prostrated the buildings, trees, &c. There may have been, in the moving cloud, a swift and constant motion, round a perpendicular centre; but this revolving whirlwind did not blow down the trees and corn. If it had done

so, the trees and corn would have lain in curves and circles corresponding to the direction of the force; whereas they all lie straight. Large fields of corn, through every part, showed the motion of a force acting in straight lines. I could not find any trace of a curve. The ground and grass were definitely marked in extensive, open fields, and no sign of curvilinear motion could be detected. All showed straight lines of march towards the central line. Upon the central line, where the apex of the inverted cone just touched the earth, there we should expect to find trees twisted off; but I find not one. All, on this line, lie thrown down without any trace of a whirl in the power that prostrated them. In most of them the bark upon the west side is scraped lengthwise, up and down, with no mark of circular motion. Two facts more may be added here. Large trees, which were broken off from five to ten feet from the ground, exhibit uniform testimony. The sap-wood, on the west side, did not break so readily as the interior layers, and therefore it was pealed off in strings; these

strings remain erect as they grew, and show no trace of twist or revolution. Twenty-eight rods north of centre stands erect the trunk of a large apple tree in Miss Brooks' orchard, before mentioned. The top of this tree was taken up, perpendicularly I presume, for the shreds and layers of the sap-wood stand pointing upward as they grew, showing no vestige of bending or contortion.

The inverted cone of wind and cloud, as it travelled through its course, may have revolved round a perpendicular axis, as many assert it did. I know not why it should, or why it should not. Having no theory to patronize or decry, I readily accede to the testimony in this particular, leaving disputants to classify the facts as they may. But I would suggest this idea; if a beholder should see such a tornado coming towards him or going from him, he would see objects projected into it from both sides of it; and these opposite motions would give the appearance of a whirl or rotation, although the objects may be moving in straight lines. The inverted cone, what-

ever may have been its composition, form or motion, left behind it a vacuum of such a character as to force the wind, after it and on each side of it, with a violence sufficient to uproot the strongest oaks; and the motion of these inrushing columns of air was in straight lines; and they were generally towards the centre of the line of march.

In Mr. Hastings' orchard, S. of his house, on the banks of the Mystic river, stood a large old apple tree. This tree was seventy-four and a half rods S. S. E. of what seemed to be the outer southern edge of the tornado; nevertheless it was beheaded, split and lies pointing exactly E. A hundred trees in its immediate vicinity were equally exposed, yet remain untouched.

The effect on some trees is worthy of record. A large horse chesnut tree, near the brook in Mr. Usher's land, was decapitated, leaving only a few small limbs attached to the lower part of the trunk. Within a week after the tornado the buds on these

limbs began to swell, new leaves soon appeared, and then blossoms; so that on the 16th September, twenty-five days after its decapitation, it displayed ten or twelve full-grown blossoms. I regret that some of these blossoms were not allowed to remain, in order to see how soon a perfect nut would have been formed under these extraordinary circumstances.

The action of the wind was searching indeed, and many strange movements were its result. In a small room, four rods S. of centre, was an engraved likeness of Pres. Fillmore pasted strongly upon a rough plastered wall. Around it were many other engravings of like size. This room was so situated that the wind came in at a west door and went out at an east window. The wind selected his Excellency's head, took it from the wall without tearing it or soiling it in the least, and having carried it through an open window, transported it more than a quarter of a mile and deposited it in the garden of a friend, who returned it safely, to be again fastened in its place.

Political prophets may tell us what this foreshadows.

In the middle of Mr. H. Whittemore's house in West Cambridge, in the second story, there is a door in whose top are six small panes of glass. This door is exactly opposite the front window, which was blown in during the tornado. Before the six panes of glass hung a white cloth curtain. Through this curtain was perforated a small ragged hole not larger than a pea. Directly behind this hole the pane of glass is perforated, and a hole is left almost as large as a half dollar. This hole in the glass was nearly round; and its edges, instead of being sharp as broken glass is, seem melted into roundness. Moreover, for a quarter of an inch round the edges of this hole, there is a thin wavy layer of apparently melted glass. A few cracks in the glass ray off from the centre of the hole. Since the tornado a piece of glass, which was loose, has been taken out, thus destroying so far the circular form of the hole and the wavy layers which bounded it. We hope that many

will examine this singular fact, especially in connection with electricity, and show us how the glass could have been melted and the cloth remain unscorched.

To enumerate all the strange facts connected with the tornado would fill pages; but I must leave them. I cannot, however, omit the mention of the sympathy shown for the sufferers. Five or six individuals were more or less injured in body. Mrs. Caldwell was taken up by the wind and carried over fences and trees, through a distance of one hundred and fifty feet, and safely deposited by the side of a neighbor's barn. Strange to say, she was only bruised a little. Such was the suddenness and force of the motion that she can give but an imperfect account of her aerial excursion. Two men at work upon a new house were thrown several rods, and one was injured considerably. The son of Mr. Sanford was thrown upon the ground, and while there, his father's house, which was moved seventeen feet from its foundation, came down upon his legs, and so crushed both feet as to render

their amputation necessary. He was taken to the Massachusetts General Hospital, and there has recovered rapidly. The fortitude and patience of this excellent young man, under his severe deprivations, are worthy of all praise.

Mr. Huffmaster was so deeply wounded by the blows received from the falling timbers of his house, that he was unable to give any account of his situation, and after remaining almost insensible for a day, expired, leaving behind him the character of an industrious man, a friendly neighbor, an attentive husband, and kind father.

It would not accord with my sense of justice, or with what I think are the sentiments of the sufferers by the tornado, if I should omit to say, that the neighbors, who had been spared from the terrible visitation, came with promptness to the aid of those in trouble, and seemed most anxious, by their personal presence, to do all that human hands could do to alleviate the horrors of the scene. The sympathy was deep and the succor spontaneous. Many a heart has been made lastingly grateful by this timely

and efficient aid from friends, who, besides the gifts of money, employed their hired men and their teams for more than a week in relieving distress, and in securing property which must otherwise have been lost.

I must also pay a tribute of respect to the people of Medford who were sufferers by this visitation. One and all have sustained their losses, met their disappointments, and borne their sorrows with a true Christian heroism, worthy of all honor. They see, in the event, an extraordinary exhibition of a great law of nature; and they bow submissive to nature's GOD.

Respectfully submitted,

CHAS. BROOKS.

Boston, Oct. 30, 1851.

REPORT OF COMMITTEE ON APPRAISALS.

At a meeting of the citizens of West Medford, on the evening of August 28th, the subscribers were appointed a Committee to appraise the damage in the town of Medford, caused by a tornado which passed over the neighborhood on the afternoon of Friday, August 22d.

That Committee have carefully and minutely examined the whole course of the tornado, and collected from individual sufferers such facts relating to it as they had to communicate, and the result of their inquiries and estimates shows a damage amounting in all to $18,768, viz:—

Buildings and fences,	$11,691
Fruit trees,	4,755
Ornamental trees,	800
Fruits, crops, &c.,	460
Miscellaneous articles,	1,062
	$18,768

The amount of individual losses, as estimated by the Committee, is as follows:—

EDWARD BROOKS—		
Barn, ...		$25,00
ESTATE BELONGING TO T. P. SMITH AND OTHERS—		
Buildings, . .	300,00	
Fruit trees, . .	600,00	
Carriages, . .	75,00	
Vegetables, . .	10,00	
		985,00
CHARLES ROLLINS—		
Two dwelling houses, unfinished, which Mr. Rollins was building by contract, both entirely demolished, including, in one case, the cellar wall. One of these buildings was on the property belonging to T. P. Smith and others, .	4,320,00	
The other was for the Rev. Mr. Haskins, . .	1,450,00	
		5,770,00
House building by J. F. Edward, on property belonging to T. P. Smith and others, .		12,00
BOSTON & LOWELL RAILROAD CO.—		
Freight car blown from track and buildings injured, .		40,00

J. M. USHER—		
Buildings,	442,00	
Fruit trees,	30,00	
Fruit,		
Ornamental tree, (horsechesnut,)	50,00	
		522,00
L. B. USHER—		
Buildings,	50,00	
Fruit trees and fruit,	58,00	
Ornamental trees, (elm in road and horsechesnut,)	100,00	
		208,00
HEIRS OF LEONARD BUCKNAM—		
Buildings and fences,	450,00	
Fruit trees,	25,00	
		475,00
J. M. SANFORD—		
Fence,	10,00	
Vegetables,	5,00	
Furniture and clothing,	150,00	
Carriages,	75,00	
		240,00
H. T. NUTTER—		
Vegetables,	5,00	
Furniture and clothing,	400,00	
		405,00
JOSEPH WYATT—		
Buildings,	250,00	
Fruit trees,	150,00	
Fruit,	10,00	
		410,00

Town of Medford—		
Buildings, (School and Poor house fences, &c.,)	410,00	
Ornamental trees,	50,00	
Fruit trees,	50,00	
		510,00
George E. Harrington—		
Buildings,	30,00	
Fruit trees,	50,00	
Fruit,	8,00	
		88,00
J. Vreeland—		
Fruit trees,	150,00	
Fruit,	12,00	
		162,00
A. L. Fitzgerald, (house slightly damaged,)		
Samuel Teel, Jr.—		
Buildings,	800,00	
Fruit trees,	200,00	
Fruit, vegetables and hay,	61,00	
Wagons, furniture, &c.,	120,00	
		1,181,00
George Caldwell—		
House,	25,00	
Fruit trees,	20,00	
		45,00
George F. Lane—		
Buildings,	600,00	
Fruit trees,	250,00	
Vegetables,	16,00	
		866,00

THOMAS HUFFMASTER—		
Buildings, . . .	275,00	
Fruit trees, . .	500,00	
Fruit and corn, . .	45,00	
		820,00
WELLINGTON RUSSELL—		
Clothing and furniture, .		25,00
E. T. HASTINGS—		
Fences, . . .	30,00	
Fruit trees, . .	100,00	
Fruit, . . .	20,00	
		150,00
J. B. HATCH—		
Fences, . . .	5,00	
Fruit trees, . .	75,00	
Fruit, . . .	25,00	
		105,00
NATHANIEL TRACY—		
Fence, . . .		10,00
JOHN W. HASTINGS—		
House and fence, . .		25,00
REV. JOHN PIERPONT—		
Buildings, . . .	500,00	
Fruit trees, . .	100,00	
		600,00
HEIRS OF JONATHAN BROOKS—		
Buildings and fences, .	677,00	
Fruit trees, . .	500,00	
Ornamental trees, . .	200,00	
Fruit, vegetables and hay,	80,00	
Carriages and hayrack, .	175,00	
		1,632,00

Alfred Brooks—		
Buildings,	350,00	
Fruit trees,	100,00	
		450,00
Noah Johnson—		
Buildings,	445,00	
Hay and grain in barn,	40,00	
Ox wagon and farming tools,	42,00	
		527,00
James Wyman—		
Fruit trees,		30,00
Moses Pierce—		
House,		25,00
John V. Fletcher—		
House,	25,00	
Fruit trees,	20,00	
		45,00
Joseph Swan—		
Fruit trees,		20,00
P. C. Hall—		
Fruit trees,	920,00	
Ornamental trees,	50,00	
Fruit,	80,00	
		1,050,00
Jonathan Porter—		
Fruit Trees,	75,00	
Fruit,	35,00	
		110,00
William Roach—		
Fruit trees,		25,00
Dudley Hall—		
Fruit trees,		25,00

SAMUEL KIDDER—		
Buildings, . . .	50,00	
Fruit trees, . .	400,00	
Ornamental trees, . .	50,00	
		500,00
THATCHER R. RAYMOND—		
Fruit trees, . .	100,00	
Ornamental trees, . .	100,00	
Fences, . . .	10,00	
		210,00
JOHN A. PAGE—		
Fruit trees, . .	150,00	
Ornamental trees, . .	50,00	
Fences, . . .	50,00	
		250,00
—— RUSSELL—		
Ornamental trees, . .		150,00
ORCHARD, (east of Andover Turnpike,)		40,00
		$ 18,768

Eastward of the private road which passes the houses of Messrs. Porter and Lemist, is a tract (extending about half a mile) of uncultivated pasture and woodland, over which the gust has left its mark by rending, breaking and overturning trees of every size and description, which were found lying in all positions; some in the direction of the blast, and others at every

angle with it. Here no damage was estimated, as the trees were useful only for timber or fuel, and for those purposes are nearly as valuable now as when standing.

Although the Committee have exercised their best judgment in making this appraisement, it probably falls far short of the estimate of the injured parties, whose feelings, in some cases, have suffered more than their property. The extent of such injury none but the sufferers can determine. The Committee were instructed to return only the pecuniary damage.

Injury to person from this disaster was much less extensive than to property, and so far as the Committee are informed, was confined to the town of Medford and to a very narrow space in the immediate neighborhood of the station of the Boston and Lowell Railroad. Seven persons were more or less injured. One (Thomas Huffmaster) lost his life while occupied in closing his house against the storm. He was struck by part of the roof of a neighbor's barn, which was driven through the side of his house. He was taken up insensible, and

so continued till his death, about thirty hours after.

James S. Sanford, son of the depot master of the Lowell Railroad, a fine youth of eighteen, lost both his feet. The house in which he lived was dislodged from its foundation, and as he was entering the door, he was thrown down, with the building resting on his feet. They were both found so badly crushed as to require amputation, which was successfully performed the same evening, and he is now nearly recovered.

A person in the employment of James M. Usher had his arm broken.

A stranger was badly injured in the head, by the falling limb of a tree,—at first, it was thought dangerously, but he is now fast recovering.

Mrs. Nutter, wife of H. T. Nutter, was at the time confined by illness to her chamber. In an instant the roof and most of the house was carried away, including the ceiling and two sides of the room she occupied, leaving her entirely unsheltered; yet she escaped with only a very slight injury. Her infant,

though since dead, is thought to have received no harm on that occasion.

J. M. Sanford, the father of James, abovementioned, was slightly injured in the neck.

A mechanic at work in the attic of the unfinished building which was wholly demolished, fell with the house, but received no other harm than a slight cut on the head. These are the only persons known to have been injured.

The three most seriously hurt were taken at once (by the Lowell Railroad) to the Massachusetts General Hospital, where they not only have had the benefit of the best professional skill which the country affords, but have received attentions, appliances and comforts such as no private establishment can supply, and all this, as is believed, without charge.

The examination was begun where the gale first struck the town, at its south-west border, on the property belonging to T. P. Smith and others, which is here bounded by the Mystic River. Its width on the margin of the river was 500 feet, and its northern edge fifty rods from the Wear

Bridge, on the road to W. Cambridge. Its direction, with some strange deviations, was nearly E. N. E. The position of objects overturned, and the course of those swept away, were quite irregular. Two large apple trees, on the estate next the river, were taken up by the roots and carried some twenty feet in a direction just opposite from that of the storm. A large part of the roof of Mr. Lane's barn and several feet of lead pipe from Rev. Mr. Pierpont's house, were carried more than 500 feet directly across its track, and many trees and other objects apparently in the midst of the current were left untouched, while others on its extreme verge were thrown down or swept away; but these incidents belong rather to another Committee, who will give a scientific view of such phenomena as the case presents.

GORHAM BROOKS,
CHAS. CALDWELL,
FRANKLIN PATCH, } *Com'ee.*
JEREMIAH GILSON,
ALBERT SMITH,

WEST CAMBRIDGE.

A meeting of the citizens of West Cambridge, was holden at the vestry of the Unitarian church in said town, on Monday evening, August 25th, three days after the tornado, at the request of the selectmen of the town, as announced from the pulpits of the several religious societies the Sabbath before. On being called to order by Mansir W. Marsh, Esq., the chairman of the board of selectmen, and the object of the meeting having been briefly stated by him, Mr. Marsh was thereupon appointed President, and Moses Proctor, Secretary.

The solemnity of the occasion which called the citizens together seemed to pervade the minds of all present, and produced a *pause* more impressive than words could express. But after a few moments of most profound silence, Hon. James Russell was called upon to submit his views on the subject matter of the meeting. Mr. Russell

responded to the call, and in a feeling manner besought all present, as well as the whole people of the town, to acknowledge with unfeigned gratitude their absolute dependence upon God and to thank him for the preservation of their lives in the midst of the danger and peril through which they had so recently passed, with such other remarks as were pertinent to the occasion. After which Mr. Russell introduced for the consideration of the meeting the following Preamble and Resolutions:

Whereas, it hath pleased God to visit our town with a calamity unprecedented in this part of our country, filling our hearts and minds with terror and dismay, at the same time mingling mercy with judgment, in preserving our lives in the midst of danger, therefore

Resolved, That it becomes us at all times to acknowledge our absolute dependence on God for every blessing, and that it especially becomes us at this time, having so recently witnessed his power and majesty, to acknowledge his great goodness in the preser-

vation of our lives in the midst of most imminent danger.

Resolved, That such of our citizens as have sustained severe losses in the prostration of their buildings, the destruction of their fruit and ornamental trees, and other property, by the recent tornado, demand our sympathy and such pecuniary aid as their necessities may require and as we have it in our power to bestow.

The foregoing Preamble and Resolutions having been read, several gentlemen addressed the meeting in favor of their adoption, and they were unanimously adopted. It was then moved by Mr. Russell to open a subscription for the benefit of such of the sufferers as could not well sustain their respective losses, and a committee consisting of George C. Russell, Joseph O. Wellington, Samuel Butterfield, and Addison Hill, were chosen to solicit subscriptions.

It was also voted to appoint a Committee of five persons to make an appraisement of the damages sustained, and Mansir W. Marsh, Lewis P. Bartlett, Moses Proctor,

(Selectmen,) and Albert Winn, and David Clark, were chosen.

It was also voted to appoint a Committee to make a distribution of the moneys collected by subscription, not in proportion to losses sustained, but in proportion to the necessities of the respective sufferers; and James Russell, John Field, Abner Pierce, John Jarvis, George C. Russell, were chosen.

MOSES PROCTOR, *Secretary.*

West Cambridge, August 25, 1851.

REPORT ON APPRAISEMENT.

THE following is a Report of the Committee appointed by the inhabitants of the town of West Cambridge to estimate the damages and loss of property to said inhabitants and to the town, occasioned by a violent tornado on the twenty-second day of August, 1851.

James Brown—		
Damage to building, . .	$35,00	
100 fruit trees, (more or less,)	750,00	
Damage to fruit and corn, .	20,00	
		805,00
Stephen Fogg, (tenant to James Brown,)—		
Loss on fruit and vegetables,		250,00
George A. Locke—		
Damage to orchard . .	150,00	
Loss of fruit, . . .	10,00	
		160,00
Josiah L. Frost—		
Damage to orchard and trees destroyed, ...		320,00
Horace Wilson, (tenant to J. L. Frost)—		
Fruit destroyed, . . .	100,00	
Damage to orchard on the Barnes' place, ...	100,00	
		200,00
George Prentis & Son—		
To 133 apple and cherry trees, blown down, blown away, and otherwise injured, . .	800,00	
Eighty-two large forest and ornamental trees, . . .	200,00	
Loss of present year's income	150,00	
Damage to house & cost of repairs,	160,00	
		1310,00

M. W. Marsh—		
16 large apple and 1 cherry trees,	120,00	
Loss of fruit and damage to vines,	40,00	
		160,00
James Hill—		
Damage to apple orchard, .	200,00	
Loss of fruit and damage to vines,	50,00	
		250,00
J. V. Fletcher—		
Damage to fruit trees, . .		100,00
James Wyman—		
Loss of fruit, . . .		45,00
Wid. Amos Frost—		
Damage to apple orchard, .	300,00	
Damage to corn and fruit, .	30,00	
		330,00
Oliver Russell—		
Damage to apple orchard, .	400,00	
" to fruit and vegetables,	50,00	
		450,00
Thaddeus Frost—		
Damage to apple orchard, .	400,00	
Loss of apples, . . .	40,00	
		440,00
William Hill, 2d—		
Damage to apple orchard, and loss of fruit trees, . . .	600,00	
Loss of fruit, ...	150,00	
		750,00
Francis S. & Newell Frost—		
Damage to fruit trees, . .	300,00	
" to forest trees, . .	00,00	
Loss of present year's income,	100,00	
		440,00

HENRY FROST—		
138 apple and pear trees blown down and otherwise injured,	1000,00	
Loss of fruit, . . .	150,00	
		1150,00
JONATHAN FROST—		
Sixty-three apple trees lost, .	630,00	
Forest trees	20,00	
		600,00
WARREN S. & VARNUM FROST—		
Damage to fruit, corn and vines,		200,00
ESTATE OF DAVID HILL,		
Damage to fruit trees and wood,	350,00	
Damage to fruit and vines, .	150,00	
		500,00
SILAS FROST—		
Damage to orcharding, . .	400 00	
" to fruit, . . .	75,00	
		475,00
EDWARD FILLEBROWN—		
Damage to fruit and forest trees,	75,00	
Loss of fruit, ...	18,00	
		93,00
TIMOTHY SWAN—		
Seventy-eight apple, five cherry, and two pear trees, . .	850,00	
Loss of fruit, ...	30,00	
Damage to buildings and cost of repairs, ...	60,00	
		940,00
DAVID W. HORTON—		
Depreciation in value of estate,		400,00

CHARLES HILL—		
Depreciation in value of estate,	460,00	
Loss of present year's income,	50,00	
		510,00
Mrs. PHEBE SWAN—		
Depreciation in value of estate,	1022,00	
Fruit lost, ...	50,00	
		1072,00
JOHN BATCHELDOR—		
House damaged, . . .		50,00
WILLIAM T. DUPEE—		
House damaged, . . .		10,00
J. C. WALDO—		
House damaged, . . .		20,00
W. J. LANE—		
Fruit trees damaged and fruit lost,		115,00
Mrs. SNELLING—		
Damage to estate, . . .	210,00	
Loss of fruit, . . .	10,00	
		220,00
Dr. FISK—		
Damage to trees, . . .		36,00
Capt. REUBEN HOPKINS—		
Loss of fruit, &c. . . .	40,00	
Damage to house and barn, .	2,00	
Forty-nine fruit trees capsized and one missing, picked up next day in land of Dr. Fisk. Damage,	400,00	
		442,00

Dr. Timothy Wellington—		
Damage to orcharding, . .	400,00	
Two chimneys blown down, .	10,00	
Loss of fruit, ...	37,00	
		447,00
Charles Griffiths—		
Damage to estate, . . .		100,00
Mr. Peck—		
Depreciation in value of estate,		610,00
Timothy Whittemore—		
Damage to fence and fruit trees,		212,50
George B. Richardson—		
Estate damaged, . . .	325,00	
Loss of fruit, ...	35,00	
		360,00
George H. Gray—		
Loss of trees and shrubbery, .		50,00
John Fowle—		
Damage to buildings and cost of repairs, ...	700,00	
Damage to fences, fruit and ornamental trees, and loss of fruit,	400,00	
		1,100,00
Horatio Locke—		
Loss of fruit trees and fruit, .		105,00
Michael M. Carthy—		
Loss of bed and clothing, .		25,00
Rufus Damon—		
Damage to stable, . . .	60,00	
Damage to fruit trees, . .	100,00	
		460,00

Mrs. P. Whittemore—		
Damage to estate, . . .		460,00
Mrs. Rebecca Whittemore—		
House damaged, . . .		25,00
William Clark—		
Damage to estate, . . .		200,00
Thomas Thorp—		
Depreciation in value of estate,	500,00	
Loss of fruit, &c., . . .	15,00	
		515,00
Thomas E. Thorp—		
Damage to house, . . .		200,00
Daniel Burbeck—		
Damage to house, . .		100,00
Mrs. Damon—		
Damage to estate, . . .		210,00
Thomas H. Teel—		
Loss of trees, fruit and corn, .		50,00
Fessenden & Whittemore—		
Loss of goods, furniture, and fixtures of store, &c., . .		1000,00
Damage to Centre School house,		124,00
Damage to forest and ornamental trees in Spring Valley, -		50,00
Estate of Henry Swan, .		40,00
Gershom Whittemore—		
Damage to buildings and fences,	225,00	
Loss of fruit and ornamental trees,	165,00	
		390,00
Heney Whittemore—		
Damage to estate and loss of fruit,		615,00

William H. Whittemore—		
Depreciation in value of estate,	600,00	
Fruit and vegetables lost, .	100,00	
Injury to cow, . . .	50,00	
		750,00
John Fillebrown—		
Damage to estate and loss of produce, ...		800,00
Samuel C. Bucknam—		
Damage to estate and loss of carriages, - - - - -		475,00
Abel R. Proctor—		
Depreciation in value of estate,		260,00
Damage and loss of fruit to sundry persons not enumerated, estimated at		500,00
William Hill, 3d—		
Damage to estate and loss of fruit,		90,00
Cornelius Akerman—Damage,		10,00
John P. Daniels—		
Damage to machine shop, &c.,		35,00
Luke Agur—		
Damage to house and garden,		100,00
Andrews Howe—		
Damage to house, . . .		25,00
Thomas R. Cushing—		
Damage to estate, . . .		175,00

Mr. CONVERSE—

Damage to house, fences, and trees, ...		40,00
JAMES WYMAN, (tenant to Mr. Converse,)—		
Damage to cornfield and loss of fruit, ...		125,00
LOTON GASSETT—		
Damage to house, . . .	100,00	
To fruit and ornamental trees,	100,00	
		200,00

Whole amount of damages and loss of property sustained by the inhabitants of West Cambridge by the late tornado as taken by the subscribers, a committee appointed for that purpose, and completed this fourth day of September, 1851, . . $23,606

MANSIR W. MARSH,
LEWIS P. BARTLETT,
MOSES PROCTOR,
DAVID CLARK,
ALBERT WINN,
} *Committee.*

SUBSCRIPTION PAPER CIRCULATED IN WEST CAMBRIDGE.

The undersigned inhabitants of West Cambridge, being solemnly impressed by the recent calamity with which we have

been visited; with a sense of our absolute dependence on God for the preservation of our lives, the greatest of all earthly gifts; and at the same time, duly sensible of our dependence on each other for sympathy and aid in time of trouble: Now feel ourselves called upon to acknowlege our gratitude to God for the preservation of our lives in the midst of the greatest peril and danger; and we would cheerfully extend to our suffering neighbors and friends our most cordial sympathy; and also such pecuniary aid, as by the blessing of God we are severally able to bestow. We therefore agree to pay on demand to the Committee chosen to solicit subscriptions for this purpose, the sums set against our respective names.

James Russell, . . .	$50,00
Thomas Russell, . .	50,00
J. Field, ...	50,00
William Adams, . .	25,00
Joseph Burrage, . .	15,00
Nathan Robbins, Jr., . .	50,00
F. Abbot, ...	5,00
Francis Horton, . . .	10,00

Albert Winn,	25,00
A. G. Peck,	20,00
George H. Gray,	30,00
George C. Russell,	15,00
Joshua Robbins,	15,00
Artemas Locke,	20,00
W. J. Niles,	50,00
Luke Wyman,	20,00
David W. Horton,	20,00
T. J. Russell,	15,00
John Osborn,	10,00
Isaac Shattuck, Jr.,	5,00
Thomas Ramsdall,	5,00
N. M. Fessenden,	5,00
W. R. Norcross,	5,00
S. H. Russell,	1,00
J. B. Hartwell,	3,00
Daniel C. Chamberlain,	20,00
Lewis P. Bartlett,	10,00
Stephen Levan,	5,00
George Stearns,	10,00
Capt. George Lee,	150,00
Amos Hill,	15,00
Henry Y. Hill,	15,00
George A. Locke,	10,00
Francis Hill,	15,00

William F. Homer,	25,00
E. Homer, Jr.,	25,00
P. B. Homer,	25,00
Otis Green,	10,00
Charles G. Winn,	20,00
John M. Hollingsworth,	30,00
J. O. Wellington,	15,00
John L. Alexander,	25,00
John Schouler,	50,00
James E. Bailey,	10,00
John Hinton,	10,00
Abner Pierce,	25,00
Martin Barnes,	5,00
Ephraim Tufts,	15,00
David Puffer,	3,00
Ephraim Tufts, Jr.,	3,00
Miles Gardner,	2,00
James and John Peabody,	10,00
John P. Wyman,	5,00
Josiah Crosby,	5,00
John P. Squires,	5,00
Orrin Robinson,	3,00
George Pierce,	50,00
Samuel Butterfield,	20,00
Walter Fletcher,	25,00
T. P. Pierce,	5,00

John A. P. Pierce, . .	5,00
Ebenezer P. Pierce, . .	5,00
S. F. Woodbridge, . .	5,00
Elijah Cutter, . . .	10,00

AMOUNT DISTRIBUTED IN WEST CAMBRIDGE.

The Committee appointed to distribute the moneys collected for the sufferers by the late tornado, in West Cambridge, have attended to the duty assigned them, and submit the following Report. They find the moneys subscribed by the citizens of the town for the purposes aforesaid, to amount to the sum of *twelve hundred and nineteen dollars.* And they have awarded to the persons, whose names are hereunder written, the sums set against their respective names, viz.

To Stephen Fogg, . .	$50,00
Horace Wilson, . . .	25,00
Widow Amos Frost, . .	75,00
Oliver Russell, . . .	75,00
Widow Phebe Swan, . .	225,00
Michael McCarthy, . .	10,00
William L. Clark, . .	50,00

Thomas Thorpe, . .	125,00
Mrs. Thomas Thorpe, . .	50,00
Thomas E. Thorpe, . .	40,00
Mrs. Daniel Burbeck, . .	25,00
P. B. Fessenden, . .	50,00
J. Jerome Fessenden, . .	50,00
George H. Fessenden, .	50,00
John P. Daniels, . . .	14,00
Luke Agur, . . .	30,00
James Wyman, 2d, . .	25,00
Gershom Whittemore, . .	40,00
Widow Henry Swan, . .	20,00
Widow David Damon, .	25,00
Thomas R. Cushing, . .	24,00
Samuel C. Buckman, . .	40,00
George Prentiss, Jr., . .	25,00
Thaddeus Frost, . . .	25,00
Charles Hill, . . .	30,00
James M. Wyman, . .	20,00
	$1219,60

JAMES RUSSELL,
JOHN FIELD,
ABNER PIERCE,
JOHN JARVIS,
GEO. C. RUSSELL,
} *Committee.*

West Cambridge, Oct. 10, 1851.

WALTHAM.

THE following account in relation to Waltham has been kindly furnished by Mansir W. Marsh, Esq., of West Cambridge.

The tornado, after passing the lands of George Lyman, Esq. where its track is plainly visible, crossed lands of Dea. Leonard Lawrence, Jacob Lawrence, Charles Kendall, Mr. Sanger and others, doing considerable damage to fruit and other trees, destroying the fruit and other crops, as far as the street called North street. The damage, thus far is not very serious, and cannot be very accurately estimated, say $500,00

At this point it became very violent, and the buildings of Messrs. Robert Baldwin & Sons were very badly injured. A portion of the roofs of both house and barn were carried away, and two or three sheds. Several swarms of bees with the fruit of their labor were destroyed, and their tenements demolished. The bees themselves taking immediate possession of the dwelling house of the elder Mr. Baldwin, the rightful oc-

cupants for the time being, were compelled to beat a retreat. The Messrs. Baldwins lost many valuable fruit trees, with fruit and other crops. Their loss is estimated at not less than $1000,00

The dwelling house of Mr. Nathan Lawrence was partly unroofed, and the shed attached to it turned round. A part of the roof of Mr. Lawrence's barn (a new one,) was carried away, and the back side blown out. Mr. Lawrence lost nearly all his fruit trees. His loss may be estimated at about $500,00

Mr. Sullivan Wellington, tenant to Mr. Lawrence, lost a quantity of hay blown out of the barn. Also, a lot of salt hay which lay in heaps in the field, with the whole of his fruit crop, &c., estimated at about $200,00

Mr. Sawyer had two sheds carried away, with considerable other damage, estimated at $300,00

Mr. Jacob Lawrence sustained considerable loss in fruit and fruit trees, . $300,00

The tornado pursued its course across rock meadow, and with great violence encountered the buildings of the Messrs. Kendalls. The estimated amount of damage done to the estate of the late Josiah Kendall may be set down perhaps at about $400,00

The house and out-buildings of Mr. David Kendall were badly damaged, some of them almost entirely demolished. A very fine grove a short distance from the house, with nearly all of Mr. Kendall's fruit trees, were almost wholly destroyed. Mr. Kendall's loss may be set down at . . $600,00

This brings us to the line of the town of West Cambridge, and to the house owned by Mr. James Brown. After passing the buildings of the Messrs. Kendalls some little distance, the violence of the gale seems to have abated, at least on the surface of the ground, and not much damage was done until it had passed the house of Mr. Brown, referred to above.

Whole amount of damage in the town of Waltham, as estimated, above . . $4000,00

The Selectmen of Waltham were written to and requested to furnish a statement of the damage, sustained by their townsmen, but they not having complied with that request, I have been induced to prepare the foregoing statement, not however with any careful survey of the premises, but wholly from casual observation and from recollection.

MANSIR W. MARSH.

NOTE TO THE READER.

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We have given in this work a general idea of the Tornado and its work of destruction, and many particular facts have also been stated; but there is an innumerable number of facts which might be stated, of great interest to the general reader, and which we shall state in another little work upon this subject, if the call for this is sufficient to warrant it. We purpose in the next to present drawings, representing different scenes. To those who desire the facts in the case, this work will be particularly valuable, and we trust not altogether uninteresting to the people generally. Such a wonderful display of God's power, was never before seen in this portion of the country; so great a destruction of buildings, trees, fences, and fruit, was never known in this State; and we may add, with gratitude to God, that such a miraculous preservation of life and limb, amidst this scene of devastation, was never before known. The work, such as it is, we now give to the public.

J. M. Usher.

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Pamphlet
Binder
Gaylord Bros., Inc.
Stockton, Calif.
T. M. Reg. U. S. Pat. Off.

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